CLAIM AMENDMENTS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method for processing images, the method comprising:

act A: converting a single first image data from a first color space into a second image data that corresponds to a second color space, wherein the single first image data includes a first pixel and a second pixel, wherein the first pixel corresponds only to a first color component and the second pixel corresponds only to a second color component that is different from the first color component;

act B: perform image processing on the second image data in the second color space to form a processed image data; and

act C: converting the processed image data to a third image data that corresponds to ~~any one color space from a set of color spaces, the set of color spaces comprising:~~

the first color space, wherein the third image data includes a third pixel and a fourth pixel, wherein the third pixel corresponds only to the first color component and the fourth pixel corresponds only to the second color component~~;~~

~~a third color space; and~~

~~the second color space but using a conversion method that is different from a conversion method that is used to perform act A.~~

Claims 2-3 (Canceled)

4. (Previously Presented) The method of Claim 1, wherein the first color space is an RGB raw space.

5. (Original) The method of Claim 1, wherein the second color space is a single color component color space.

6. (Original) The method of Claim 1, wherein the second color space is a multiple color component color space.

7. (Original) The method of Claim 1, wherein the second color space includes any one of a third set of color spaces, the set comprising:
RGB raw space;
RGB composite space;
YC_bC_r space;
YUV space;
YIQ space;
YD_bD_r space;
YCC space;
HSI space;
HLS space;
HSV space;
CMY space; and
CMYK space.

8. (Original) The method of Claim 1, wherein the third color space is a single color component color space.

9. (Original) The method of Claim 1, wherein the third color space is a multiple color component color space.

10. (Original) The method of Claim 1, wherein the third color space includes any one of a fourth set of color spaces, the set comprising:
RGB raw space;
RGB composite space;
YC_bC_r space;
YUV space;
YIQ space;

YD$_b$D$_r$ space;

YCC space;

HSI space;

HLS space;

HSV space;

CMY space; and

CMYK space.

11. (Original) The method of Claim 1, wherein act A further comprises using one or more temporary buffers to store the second image data.

12. (Original) The method of Claim 1, wherein act B further comprises using one or more temporary buffers to store the processed image data.

13. (Original) The method of Claim 1, wherein act B further comprises one or more of the following:

    performing auto white balance;

    performing auto exposure control;

    performing gamma correction;

    performing edge detection;

    performing edge enhancement;

    performing color correction;

    performing cross-talk compensation;

    performing hue control;

    performing saturation control;

    performing brightness control;

    performing contrast control;

    performing de-noising filters;

    performing smoothing filters;

    performing decimation filters;

    performing interpolation filters;

performing image data compression;

performing white pixel correction;

performing dead pixel correction;

performing wounded pixel correction;

performing lens correction;

performing frequency detection;

performing indoor detection;

performing outdoor detection; and

applying special effects.

14. (Original) The method of Claim 1, wherein act A further comprises performing a color interpolation for converting each pixel that is associated with the first image data from a single color component to a multiple color component to form a corresponding interpolated pixel.

15. (Original) The method of Claim 14, further comprising applying a conversion equation to each interpolated pixel, wherein the conversion equation is selected based on the second color space.

16. (Original) The method of Claim 1, wherein act A further comprises applying a conversion equation to each pixel, wherein the conversion equation is selected based on the second color space.

17. (Original) The method of Claim 14, wherein performing a color interpolation further comprises deriving missing color components for each pixel from the pixel's neighboring pixels, wherein the neighboring pixels contain the missing color components.

18. (Original) The method of Claim 17, wherein deriving missing color components for each pixel from the pixel's neighboring pixels comprises one or more of the following acts:

act P: deriving missing color components for each pixel from the pixel's closest previous and next pixels in a horizontal direction, wherein the closest previous and next pixels contain the missing color components;

act Q: deriving missing color components for each pixel that has no previous pixel in the horizontal direction from the pixel's closest next pixel in the horizontal direction, wherein the next pixel contain the missing color components;

act R: deriving missing color components, for each pixel that has no next pixel in the horizontal direction, from the pixel's closest previous pixel in the horizontal direction, wherein the previous pixel contain the missing color components;

act S: deriving missing color components for a line of pixels from a previous line of pixels, wherein the previous line of pixels contain the missing color components; and

act T: using a fixed number for each missing color component for the line of pixels if there is no previous line of pixels.

19. (Original) The method of Claim 18, wherein act P further comprises averaging the pixel's closest previous and next pixels in the horizontal direction.

20. (Original) The method of Claim 18, wherein act P further comprises using a weighting function on the pixel's closest previous and next pixels in the horizontal direction.

21. (Original) The method of Claim 18, wherein act S further comprises averaging pixels corresponding to each missing color component from the previous line of pixels.

22. (Original) The method of Claim 18, wherein act S further comprises applying a weighting function to pixels corresponding to each missing color component from the previous line of pixels.

23. (Original) The method of Claim 18, wherein the fixed number is based on missing color components from previous frames.

24. (Original) The method of Claim 14, further comprising using one or more filters, wherein the one or more filters include:

finite impulse response (FIR) filters;

infinite impulse response (IIR) filters;

low-pass filters;

high-pass filters;

band-pass filters;

band-stop filters;

all-pass filters;

anti-aliasing filters;

decimation (down-sampling) filters; and

interpolation (up-sampling) filters.

25. (Original) The method of Claim 14, further comprising using filters before performing the color interpolation.

26. (Original) The method of Claim 14, further comprising using filters after performing the color interpolation.

27. (Original) The method of Claim 14, further comprising using filters before and after performing the color interpolation.

28. (Original) The method of Claim 14, wherein performing a color interpolation further comprises using one or more of the following interpolation methods:

nearest neighbor interpolation;

bilinear interpolation;

cubic interpolation;

Laplacian interpolation;

adaptive Laplacian interpolation;

smooth hue transition;

smooth hue transition Log interpolation;

edge sensing interpolation;

variable number of gradients;

pattern matching interpolation;

linear color correction interpolation; and

pixel grouping interpolation.

29. (Original) The method of Claim 1, wherein act C further comprises re-mapping each pixel of the processed image data into the selected color space.

30. (Original) The method of Claim 1, wherein act C further comprises applying a conversion equation to each pixel of the processed image data, wherein the conversion equation is selected based on a selected color space from the set of color spaces.

31. (Original) The method of Claim 30, further comprising, after applying the conversion equation, re-mapping each pixel of the processed image data into the selected color space.

32. (Original) The method of Claim 31, wherein re-mapping includes dropping undesired color components.

33. (Original) The method of Claim 32, further comprising using filters before dropping undesired color components.

34. (Original) The method of Claim 32, further comprising using filters after dropping undesired color components.

35. (Original) The method of Claim 32, further comprising using filters before and after dropping undesired color components.

36. – 70. (Canceled)

71. (New) The method of Claim 1, wherein act A, act B, and act C are all performed by a digital signal processor (DSP) of an imaging capture system, wherein the imaging capture system includes an imaging capture device coupled to output the first image data to the DSP.

72. (New) The method of claim 71, wherein the imaging capture device is a CMOS image sensor.

73. (New) The method of claim 72, wherein the imaging capture system further includes a CPU coupled to control the imaging capture system.

74. (New) The method of claim 73, wherein the imaging capture system further includes a memory coupled to the DSP and the CPU, the memory including one selected from the group consisting of: SRAM, DRAM and ROM.

75. (New) The method of claim 74, wherein the imaging capture system further includes a persistent storage coupled to store the first, second, and third image data, the persistent storage including one selected from the group consisting of: a flash memory, an SD card, an MMC card, a CF card, a memory stick card, and a hard disk.

76. (New) The method of claim 71, wherein the imaging capture system further includes an interface to couple the imaging capture system to a computer system, the interface including one selected from the group consisting of: USB 1.1, USB 2.0, IEEE 1394, LVDS, UART, SPI, I^2C, µWire, EPP/ECP, CCIR601, CCIR656, IrDa, and Bluetooth.

77. (New) The method of claim 76, wherein the imaging capture system is a device selected from the group consisting of: a video camera, a surveillance camera, a digital still camera, a digital camcorder and a PC camera, and wherein the computer system is a device selected from the group consisting of: a cellular phone, a smart phone, a network device, a PDA and a personal computer.